

The figure shows a stack of "engaged margin edges" of papers being turned to the stack of "current pages" in the state stacking "such pages" while account is taken for movement of "side guides" from "left" to "right" position, so to close said one page in the align pages various cross-track sensors without necessitating the reflector.

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21634 Enzymatic silk degumming

Silk degumming or silk desizing or removal of sericin from silk is three terms covering the same process as conventionally carried out by treatment with a boiling soap solution. This degumming can be carried out both on the silk threads before weaving and on the finished woven silk fabric, whereby the latter treatment is the most important.

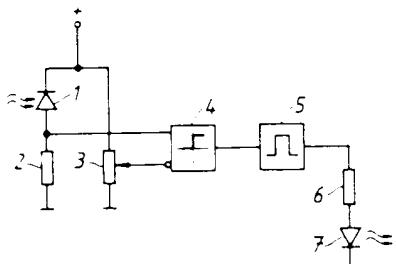
It has been reported in the published technical literature (M Minagawa, 'SEN' TO KOGYO', Vol 5 (No 1), pp 26-38 (1972), that silk yarn can be degummed enzymatically, using neutral *Bacillus* protease at pH 6-7, or alkaline *Bacillus* protease at pH 9-10, but with woven silk (crepe) only poor degumming was found with alkaline *Bacillus* protease at pH 9-10. Good degumming effect on woven silk with alkaline *Bacillus subtilis* protease has been reported (H Iida, 'SEN' KAKO, Vol 23 (No 7), pp 485-489 (1971) and Vol 23 (No 8), pp 578-584 (1971)), but it was found that a low pH had to be used (pH 7.5-8.0 at 50-60°C), only light-weight woven silk was used (weight 31.87 g/sq meter, 32 x 32 threads/cm), and pre-treatment had to be used (10 minutes at 80°C).

It has been found that other alkali-stable proteases possess excellent silk degumming activity, ie the proteases described in US Patent No 3,723,250 (NOVO INDUSTRI A/S, Copenhagen), eg the commercial products ESPERASE and SAVINASE. This process has been carried out at pH 7 and with contents of other ingredients (builders, surfactants, etc) similar to those used industrially (see, eg M Minagawa, 'KINTU NO KAGAKU', Kansai Koromo Seikatsu Kenkyu Kai, Osaka (1981)). It has been found that these other alkali-stable enzymes are well suited for degumming, not only of silk yarn and lightweight woven silk as described above, but also of heavyweight woven silk which cannot be satisfactorily degummed by previously known enzymatic methods. The enzymatic treatment with these other alkali-stable proteases can be carried out at a pH from 7 to 11 (preferably around pH 10), and at a temperature from ambient to 70°C (preferably around 60°C).

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21637 Instrument for measuring optical radiation levels in optical transmission systems

The drawing shows an instrument for measuring the light intensity levels in an optical signal transmission system. Such a system may comprise a large number of light emitters (such as light-emitting diodes) and light transmitting means (such as optical fibres). The instrument may be used to measure light intensity levels at various points in the system in order to verify the correct function of the system. It has a light detector (1), such as a photo-diode, connected in series with a resistor (2) to a source of DC voltage. The voltage across the resistor (2) will be a function of the intensity of the light incident on the detector. A manually variable potentiometer (3) is also connected to the voltage source. A comparator (4) senses the difference between the light intensity dependent voltage from the resistor (2) and the potentiometer output voltage and generates an



output signal to trigger a pulse stretching device (5). This device may be a retriggerable monostable flip-flop, which emits an output pulse of given length when triggered, or it may be a manually resettable bistable flip-flop. In both cases the device (5), when triggered by the comparator, generates an output voltage to a light emitter (6), which is a light-emitting diode through a resistor (7), whereupon the light emitter emits a visible light signal. The potentiometer (3) has a scale, which may be graduated directly in light intensity level. By adjusting the potentiometer until it reaches the position when the light emitter (6) is observed to just turn on or off the incident light intensity may be read off from the scale. The instrument measures the peak intensity of incident light and may be used for continuous or pulsed light signals (including very short pulses made visible by the pulse stretching function) and measures the incident light intensity independent of type of modulation and of the pulse frequency. The instrument is preferably made battery-powered and contained in a pocket-sized casing.

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21638 Rubber modified ABS resins

Rubber modified ABS resins have excellent physical and chemical properties are prepared by blending an ABS resin with the powder form of a rubber such as a copolymer of butadiene and acrylonitrile. Since the rubber is in the form of a powder, rather than the more conventional clump or crumb form, it is easily distributed uniformly through the ABS resin without using extensive or complex extrusion or mixing techniques or equipment. In fact, the short extruder normally proceeding an injection molding apparatus is generally sufficient to uniformly disperse the rubber powder in the ABS resin and rubber modified ABS products can readily be prepared by injection molding without previously blending the ABS resin and rubbery powder. Moreover, it is also possible to hot blend the rubbery powder with the ABS resin, ie, the ABS resin can first be heated and subsequently blended with the rubbery polymer.

The ABS resin employed in the preparation of the rubber-modified product can be made by any of a variety of processes such as mass or suspension polymerization and are commercially available. Preferably, the ABS resin is prepared using from about 6 to about 30, more preferably from about 6 to about 20, weight percent of a polymerized rubber monomer; from about 15 to about 30, more preferably from about 17 to about 25 weight percent acrylonitrile, and the balance styrene, wherein said weight percents are based on the total weight of styrene, rubber and acrylonitrile. The rubber monomer employed in the preparation of the ABS resin are preferably conjugated dienes, eg, butadiene, or mixtures thereof with one or more monomers copolymerizable therewith. In addition, the ABS resin will also generally contain small amounts of various additives such as anti-oxidants, stabilizers and the like.

The rubbery powder component of the rubber modified ABS may be any conventional rubbery copolymer. Advantageously, the rubbery powder is a copolymer of butadiene and acrylonitrile, preferably a copolymer prepared using from about 20 to about 50 weight percent acrylonitrile and from about 80 to about 50 weight percent butadiene, said weight percents being based on the total weight of butadiene and acrylonitrile. Small amounts of typical additives, eg, calcium stearate, are also generally included within the rubbery copolymer. Preferably, the rubbery powder has a number average particle size of less than about 5 mm, more preferably less than about 1 mm. Representative of such material is Hycar 1543 sold by Polysar International, SA.

In the preparation of the rubber-modified ABS, from about 1 to about 10 weight percent of the rubber is physically blended with from about 99 to about 90 weight percent of the ABS resin. A uniform distribution of the rubber throughout the ABS resin is desired. In addition, small amounts of other additives are generally incorporate within the ABS resin. Of such additives, a plasticizer, preferably dioctylphthalate, is employed, advantageously, in amounts from about 0.1 to about 10 weight percent based on the weight of the ABS resin and rubbery powder.

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21635 Variable curvature phase adjusting drive mechanism

A drive mechanism for engine camshafts and the like to provide cyclically variable phasing of the input and output shafts. The mechanism comprises a pair of cylindrical gears A and B which are